Collaborative Investigation at a Biosolids Land Application Site

Stephen Wright
Physical Science Technician
U.S. EPA Office of Research and Development (ORD)/National Risk Management Research Laboratory (NRMRL)/Land Remediation and Pollution Control Division (LRPCD)
(513) 569-7610
wright.stephen@epa.gov

Authors: Stephen L. Wright
U.S. EPA ORD/NRMRL/LRPCD
Keywords: biosolids, land application, collaborative, stakeholders, wastewater

Wastewater treatment ensures that solid and dissolved constituents are removed from the water that goes down the drain daily from homes and industries throughout the nation. Ideally, the water released from the treatment plant back into the environment will have negligible remaining pollution. Since we all live downstream from somebody else's wastewater treatment plant, we certainly hope this is the case. The solid residuals left after wastewater treatment can be incinerated, landfilled, or applied to the land as a soil amendment. The most cost-effective approach is to apply the treated solids to agricultural land as a soil amendment. The nutrient content of these treated solids (biosolids) can be substantial, and land application allows for beneficial reuse of this material. Questions have been raised about the human health and environmental effects of the residual microbial and chemical constituents that may be present in the treated biosolids that are land applied. It has been hypothesized that some of these materials may be released into the atmosphere during land application and drift downwind, affecting members of the surrounding community. Other concerns have been raised about the long-term effect that these materials and microorganisms have on the soil to which they are applied.

In 2002, the National Research Council reviewed regulations governing land-applied biosolids and made several recommendations. The NRMRL began to address these recommendations by conducting research at land application sites. An impressive team from federal, state, and local governmental agencies, universities, stakeholders, and contractors and subcontractors was assembled for the initial field study. The work plan was peer-reviewed by an independent panel of experts prior to beginning field activities because of the importance the Agency placed on this research.

The final collaborative team consisted of the U.S. Environmental Protection Agency (U.S. EPA), U.S. Department of Agriculture, North Carolina Department of Agriculture & Consumer Services, North Carolina Department of Environment and Natural Resources, Pennsylvania Department of Environmental Protection, University of Arizona, University of Colorado at Boulder, North Carolina State University, a local wastewater plant, and a citizen/stakeholders group referred to as an Information Sharing Group.

Results from the initial study will begin characterizing emissions associated with land application and investigate possible long-term effects that biosolids application may have upon pasturelands. Sampling and analytical methods developed during the initial study will be utilized for future studies. Results may also be useful to risk assessors or risk managers.